APPENDIX

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Introduction
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The U.S. External Position

This afternoon we will provide a long-term perspective on the external position of the United States. Our presentation will use the package of materials that has been distributed to you and will be in three parts.

First, Peter Hooper will analyze how we got to where we are, focusing on the unprecedented deficit now being observed in the U.S. current account.

Peter Isard then will discuss where the present high level of the dollar -- if it were maintained -- would take us, in terms of our current account and our external investment position.

Finally, Dale Henderson will consider the implications of alternative scenarios -- embodying both exogenous and policy-induced declines in the dollar.

Let me turn to Mr. Hooper.

Peter Hooper
Part I

The first chart in the package of materials places recent movements in the U.S. current account in a historical perspective. As shown in the top panel, the United States ran a current account surplus, on average, during most of the post-war period. The current account was about in balance in 1980, but it has dropped sharply over the past two years, reaching an estimated deficit of about $85 billion at an annual rate in the first quarter of this year, more than five times as large as any annual deficit recorded prior to last year. As shown in the bottom panel, the recent decline in the current account is less dramatic when expressed relative to GNP, but it still reaches a level that is well outside the post-war historical range of plus or minus one percent of GNP.

The top panel of Chart 2 presents two measures of the U.S. external investment position, or the level of U.S. assets held abroad minus foreign assets held in the United States. The solid line shows the officially recorded external investment position, and the dashed line, which begins at the recorded position in 1948, shows movements in the cumulated current account. By either measure the external investment position has been substantially positive during most of the past 35 years, contributing to a comfortable surplus on U.S. net investment income receipts. In recent years, the cumulated current account has fallen substantially below the recorded series. This difference largely reflects recent increases in the statistical discrepancy, or unreported transactions, in the U.S. international accounts. The solid line

implicitly treats the discrepancy as unreported current account transactions, while the dashed line implicitly treats it as unreported capital flows. We have reason to believe that much of the discrepancy does reflect unreported capital flows, so that the recorded series, or the solid line in the chart, gives an optimistic picture of our present external investment position.

In any event, the evidence points to a substantial decline in the U.S. external position. The developments underlying this decline can be analyzed at two levels, as outlined in Chart 3. The first involves accounting for the effects of the proximate determinants of the trade and non-trade components of the current account. The proximate determinants include: (1) changes in U.S. price competitiveness, (2) movements in the relative cyclical positions of the United Sates and its major trading partners, and (3) changes in other factors that have directly affected the current account. These other factors include international debt problems, which have affected our exports, and changes in oil prices and oil consumption, which have affected our imports. The second level of analysis involves accounting for shifts in more fundamental factors that affect the current account indirectly, through their impacts on the proximate determinants. In particular, these include fiscal and monetary policies--here and abroad--and other exogenous factors affecting international asset preferences.

Movements in the first proximate determinant, U.S. price competitiveness, are indicated in the top panel of Chart 4, which shows the weighted average foreign exchange value of the dollar adjusted for relative consumer prices. On this index, the dollar rose more than 40 percent between the fourth quarter of 1980 and the first quarter of 1984.

Movements in relative cyclical positions are illustrated in the bottom panel, which shows real GNP in the United States and other G-10 countries. Since the fourth quarter of 1980, U.S. GNP has risen about three percent more than foreign GNP. Most of this relative increase took place over the past year, as the U.S. economy recovered faster from a deeper recession in 1982.

Chart 5 shows U.S. exports to developing countries. As indicated by the solid line, our total exports to this area declined between 1980 and the first quarter of 1984. This decline reflects, in particular, the efforts of countries burdened by debt to cut back on their imports. U.S. exports to the ten major countries experiencing serious debt problems, indicated by the dashed line, fell by $15 billion over this period.

Chart 6 provides a summary allocation of the $85 billion decline in the current account since 1980 among the main proximate determinants. Based, in part, on model simulations, we would allocate about $70 billion to the decline in U.S. price competitiveness, roughly $20 billion to the relative strength of the U.S. cyclical recovery, and another $15 billion to the contraction of demand from developing countries with debt problems. Working in a positive direction was a $20 billion effect due to the decline in oil prices during this period and further declines in domestic oil consumption.

Several fundamental developments underlie the shifts in these proximate determinants. The change in U.S. fiscal policy over the past three years has attracted considerable attention. The top line in Chart 7 shows the increase in the structural, or high employment, federal budget deficit from its low of $30 billion in 1981. The structural deficit in 1984 is expected to have risen by about $100 billion since

1981, or by about 3 percent of current GNP. The chart also shows model-based estimates of the effects of that increase. We estimate that the U.S. fiscal expansion will increase real GNP to a level about 2-1/2 percent above where it otherwise would be in 1984, contributing substantially to the growth of import demand. Assuming unchanged money growth, the fiscal expansion keeps U.S. real interest rates about 2-1/2 percentage points above where they otherwise would be. Taking into account some sypathetic increase in foreign interest rates, such a rise in U.S. interest rates suggests that the dollar is about 8 percent higher in 1984 as a result of the U.S. fiscal expansion.

The appreciation of the dollar, in turn, has two effects. First, by reducing the price of imports, it largely offsets the inflationary effects of the expansion, leaving the path of domestic prices about unchanged, as shown in line 5. Second, it contributes, along with the expansion of real GNP, to the widening of the current account deficit--shown in line 6. The current account is also affected by the rise in interest rates, which has a small effect on net investment income receipts, and which tends to depress exports to countries with debt problems. The net impact of the fiscal expansion on the current account by 1984 is an estimated $30 billion larger deficit.

These estimates leave most of the rise in the dollar and its impact on the current account unexplained. This shortfall could reflect, at least in part, the limitations of the models employed. In particular, the models do not incorporate forward looking expectations and, therefore, miss the effects of anticipated future budget deficits on real interest rates and exchange rates. However, it also indicates that other fundamental factors were influencing the dollar.

The price adjusted dollar is shown again as the solid line in Chart 8. The dashed line in the chart shows the differential between a measure of U.S. long-term real interest rates and a weighted average of foreign long-term real rates. In theory, this differential provides a link between the exchange rate and underlying economic policies. In practice, the relationship between the real interest rate differential and the real exchange rate has varied considerably in the short run, but it is evident that the longer-run movements in the two series have been fairly consistently correlated over most of the floating-rate period.

Since mid-1979, U.S. real interest rates have risen more than 6 percentage points relative to foreign real rates. Most of this rise followed the move to greater monetary restraint in the United States than abroad, beginning in late 1979. By the time the shift in U.S. fiscal policy was implemented at the end of 1981, the interest rate differential had begun to level off. Some of the effects of the U.S. fiscal expansion could have been anticipated earlier. However, the primary effect of that expansion, against a background of fiscal restraint abroad, was to keep the interest differential from falling to a substantially lower level in 1982 and beyond.

As indicated in the chart, the rise in the real interest differential since 1979, has been associated with much of the dollar's appreciation in real terms. However, the dollar continued to rise after the interest differential leveled off in 1982. A good deal of this subsequent gap has been attributed to exogenous political and economic developments abroad, including "safe haven" considerations, that have shifted preferences in favor of dollar-denominated assets. In the absence of these factors, the dollar would have been noticeably lower and the interest rate differential somewhat higher.

In conclusion, a rough accounting of the various fundamental factors suggests that changes in economic policies in recent years can explain most of the widening of the current account deficit due to cyclical factors. To the extent that these policy changes were responsible for changes in real interest rates, they could also explain more than half of the increase in the deficit due to reduced price competitiveness. This combined effect would amount to about two thirds of the widening of the current account deficit, excluding the favorable movement in oil imports. Much of the remaining increase in the deficit reflects the effects of other exogenous developments that have influenced international asset preferences.

Mr. Isard will now continue our presentation.

Peter Isard
Part II

I will focus on the implications for our international accounts during the rest of the decade if the dollar remains around its current average value. I will also discuss why the staff believes that the current high level of the dollar is not sustainable.

The top panel of Chart 9 shows a simulation of how the U.S. merchandise trade and current account deficits would expand through 1990 with the average nominal foreign exchange value of the dollar unchanged at its recent index level of 130. The lower panel shows the simulated values of key explanatory variables. The simulated values for 1984 and 1985 are based on the staff's current Greenbook projections, but are adjusted to be consistent with the assumption that the value of the dollar will remain constant; the Greenbook forecast is that the dollar will depreciate by roughly 15 percent by the end of 1985. The simulated values for 1986 through 1990 were derived by making similar adjustments to an extrapolation of the Greenbook projections, which assumed fairly similar growth and inflation rates in the United States and the G-10 countries, and a somewhat higher growth rate for the developing countries. The assumption of an unchanged value of the dollar tends to depress U.S. growth and inflation and to stimulate foreign growth and inflation relative to the Greenbook forecast and its extrapolation.

Referring to the upper panel, the simulated values of the trade and current account deficts widen to around $180 billion in 1990. Much of the widening of these deficits occurs in 1984. The diminishing

year-to-year changes in the trade deficit from 1984 through 1987 mainly reflect three factors: first, the wearing off of the lagged effects on trade flows of the dollar's appreciation to date; second, a projected pick up in foreign activity growth and slowdown in U.S. activity growth; and third, the assumption that the dollar price of oil will remain constant through 1987, which reduces temporarily the growth in the value of imports. Starting in 1988, however, the trade deficit again begins to widen by $10 to $15 billion a year, and that underlying trend would continue into the next decade had we extended our simulations. The period beginning in 1988 is one in which imports and exports are simulated to be expanding at fairly similar percentage rates, and the underlying trend in the trade deficit results from the initial condition that imports exceed exports by nearly $150 billion in 1988. It may also be noted from the chart that the difference between the current account and the trade balance declines fairly gradually and shows only a small deficit in 1990.

The explanation for the gradual decline in the current account relative to the trade balance is summarized in Chart 10, which compares the simulated values of current account components for 1990 with data for 1983. The last column shows that under an unchanged dollar, our net income from portfolio investments (line 4) would decline by $62 billion from 1983 to 1990, while our net income from direct investments (line 5) would rise by $21 billion and our net receipts from other services and transfers (line 6) would increase by $15 billion. The decline in net income from portfolio investments mainly reflects the rapid build-up of our external debt, while a large part of the rise in net direct investment income reflects a rebound in earnings on our existing stock of

direct investments overseas as rising foreign economic growth and capacity utilization rates lead to a substantial pick-up in profits from levels that recently have been very depressed, and as foreign inflation increases the nominal value of those earnings.

Given this simulation of how our external deficits would expand if the dollar remained around its current average value, it is natural to ask whether the current strength of the dollar is sustainable. One analytic framework for discussing sustainability is to consider whether variables that seem relevant are projected to get better or worse. A starting point is the question of whether the state of U.S tradable goods industries would get better or worse. Chart 11 helps to address this question. Under the assumptions of a constant nominal exchange value of the dollar and inflation rates slightly higher in foreign countries than in the United States, prices of U.S. tradable goods would decline gradually relative to prices of foreign tradable goods. In other words, although the value of the dollar would remain unchanged in nominal terms, it would depreciate gradually in real terms. In this sense, U.S. tradable goods industries as a group would benefit gradually from an easing of the pressures that they have been placed under by the substantial appreciation of the dollar over the past several years. The expansion of economic activity abroad would also stimulate the volume of U.S. exports, which are simulated to recover by 1990 to a volume nearly 20 percent higher than the 1980 peak. Even though the volume of merchandise imports after 1984 would rise at almost the same pace as exports, the continuing growth of the U.S. economy would lead to continuing expansion in U.S. tradable goods industries.

Although the projected state of U.S. tradable goods industries does not appear to suggest that the current strength of the dollar is unsustainable, a different picture emerges from focusing on the extent to which the United States would be relying on saving from abroad. In Chart 12, the top panel shows that our current account deficit, or net capital inflow, would be absorbing a growing proportion of foreign net saving. Although estimates of foreign saving are necessarily crude, we estimate that with an unchanged exchange rate the fraction would rise to about 6-1/2 percent in 1984 and 7-1/2 percent in 1990. The lower panel shows that our current account deficit is expected to expand to about 2-1/2 percent of our GNP this year and would exceed 3 percent of GNP in 1990. If we extended our simulations beyond 1990, we would expect these ratios to continue to grow gradually, rather than to move back toward zero.

An important implication is illustrated in Chart 13. Based on the estimate that our recorded external investment position was $135 billion at the end of 1983 (which, as Mr. Hooper suggested, may well overstate the true position), and also making the assumption that future statistical discrepancies in the balance of payments accounts will average to zero, the simulated stream of current account deficits would lead to a net debtor position for the United States of around $800 billion by the end of 1990. Moreover, as indicated in the lower panel, the stock of our net external debt would expand by 1990 to about 14 percent of the GNP available to service the debt, and that ratio would not level off over the foreseeable future.

The prospect of a rising ratio of external debt to GNP over the foreseeable future is the basis for the staff's view that the current strength of the dollar is not sustainable over the long run. As

highlighted in Chart 14, in our view, and consistent with analytic models of steady-state equilibrium, an essential requirement for sustainability is that our external investment position relative to GNP must stabilize. On the assumption that foreign GNP and wealth variables will grow at about the same rate as U.S. GNP over the long run, our sustainability criterion is also a requirement for stabilizing the share of U.S. debt in the portfolios of foreign wealth holders. As an approximation, meeting the sustainability criterion requires that the dollar depreciate, in real terms, sufficiently to eliminate the trade deficit. With the trade accounts roughly in balance, the growth rate of the stock of net external debt would be approximately equal to the nominal interest rate, since the change in the external debt -- namely, the current account deficit -- would be approximately equal to net investment income payments, or to the stock of debt multiplied by the nominal interest rate. Thus, to the extent that the nominal interest rate can be expected to be approximately equal in the long run to the growth rate of nominal GNP, with the trade accounts roughly in balance over the long run, the growth rates of external debt and nominal GNP could be expected to be approximately the same, thus satisfying the sustainability criterion.

The issue of sustainability should be distinguished from considerations of desirability, which are also highlighted in the chart. In the short run, the strength of the dollar and our current account deficit provide several benefits. Our current account deficit reduces the upward pressure on domestic interest rates that would develop if large federal budget deficits and growing private domestic demands for credit had to be financed from domestic saving alone. Moreover, the growth of U.S. imports has expansionary effects on economic activity

abroad and eases the process of adjustment in countries burdened with debt. Over the longer run, judgements about desirability can be framed in terms of two questions. To what extent is borrowing from abroad leading to greater capital formation in the United States? And is borrowing by the United States consistent with an efficient and equitable allocation of world saving -- that is, with world saving being channeled into countries where it can be invested most productively, or where it is desired to support consumption levels that are considered to be appropriate on the basis of welfare judgements?

While these issues of desirability are important, a more central focus of our presentation today is on the issue of sustainability, which Mr. Henderson will now address further.

Dale W. Henderson
Part III

According to the analysis presented by Mr. Isard, if the foreign exchange value of the dollar were to remain at its current high level, the U.S. external position would be unsustainable, in the sense that our net external debt would continue to rise relative to our GNP. Such analysis has led many observers to conclude that sooner or later there will be a substantial drop in the exchange value of the dollar. Therefore, I will first discuss the implications of two possible paths of dollar depreciation that are shown in Chart 15.

In each case, the dollar's depreciation is assumed to be caused by a shift in market sentiment against the dollar with no change in U.S. or foreign economic policies. This shift might result from a negative reappraisal of the U.S. external position or a reduction in "safe haven" demand for dollar assets. The path of gradual depreciation is the path projected by the Staff in the Greenbook plus an extension through early 1988. Along this path the dollar falls from its current level to about its average level for the floating rate period through 1980 -- a total depreciation of about 30 percent. Depreciation could follow this path if all private agents gradually revised their views about the prospects for the dollar or if some groups revised their views later than others. Another possible path is the path of rapid depreciation. Along this path, the dollar falls over two years from its current level to one that is roughly consistent with a sustainable external position -- a total depreciation of about 45 percent. This path might be generated by an abrupt change in opinion about the implications of the current value of the dollar for our external position.

The effects of the two depreciations on the U.S. external position are shown in Chart 16. As shown in the top panel, both the gradual depreciation and the rapid depreciation contract the current account deficit relative to the level implied by an unchanged dollar. However, as shown in the bottom panel only the rapid depreciation generates a sustainable U.S. external position by stopping the decline in the external investment position relative to GNP. The depreciation required for sustainability is larger than the one that would be necessary to return to historical exchange rate relationships because it must compensate for a permanently lower level of demand for our exports by both developed and developing countries.

Chart 17 shows some of the effects of the two hypothetical depreciation paths on the U.S. economy. As shown in the top panel, U.S. real GNP is initially higher with the depreciations than with an unchanged dollar because the depreciations stimulate demand for U.S. goods. However, real GNP is subsequently lower because demand is choked off by interest rate increases. The average annual growth rate of real GNP along all three paths is about 3 percent.

The bottom panel indicates the extent to which the depreciations affect the rate of consumer price inflation both directly, through the price of imports, and indirectly, through the level of economic activity. The inflation rate, like real GNP, is first higher and later lower than with an unchanged dollar. In 1985 and 1986, inflation is 2 percentage points higher with the gradual depreciation and 3 percentage points higher with the rapid depreciation. For both depreciations the level of consumer prices is always higher.

As shown in Chart 18, given an unchanged path of money, the initial increases in GNP and prices lead to substantial increases in the Treasury bill rate. These increases explain why real GNP is eventually lower for a time than with an unchanged dollar. The depreciations have contractionary effects abroad; weighted average foreign real GNP and consumer price inflation are lower throughout the simulation horizon.

So far I have discussed the implications of exchange rate changes that might result from a shift in market sentiment with no change in economic policies. The gradual depreciation by itself does not appear to be enough to stabilize the ratio of the external investment position to GNP by 1990. However, the gradual depreciation combined with plausible policy actions can achieve this result. I will consider the implications of two possible policy scenarios. The first is a fiscal contraction with no change in monetary policy. The second is a change in the policy mix, that involves the same fiscal contraction accompanied by a monetary expansion sufficient to keep real GNP roughly unchanged. In both cases, the fiscal contraction represents a 40 percent reduction in the structural budget deficit beginning in 1986.

Chart 19 shows how the two policy actions affect the exchange value of the dollar. As you have already seen, the dollar depreciates significantly along the gradual depreciation path. Its value is even lower with the policy actions -- an average of 4 percent lower with the fiscal contraction and 11 percent lower with the change in policy mix. The dollar is lower with the policy actions because U.S. interest rates are lower.

Chart 20 shows how both policy actions reinforce the effects of the gradual depreciation alone on the U.S. external position. As indicated in the top panel, both actions lead to substantial narrowing of the U.S. current account deficit in the last five years of the decade. These reductions occur because the value of the dollar and U.S. interest rates are lower with both actions. In addition, U.S. GNP and prices are lower with the fiscal contraction. The effect of the change in mix is greater than that of the fiscal contraction because the decreases in the value of the dollar and U.S. interest rates are so much larger. As indicated in the bottom panel, combining either policy action with a gradual depreciation yields a roughly sustainable external position. With the fiscal contraction the U.S. external investment position relative to GNP stops declining by the end of the simulation period. With the change in mix that ratio actually starts to rise.

Some of the effects of the two policy actions on the U.S. economy are summarized in Chart 21. As shown in the top panel, with the change in policy mix, real GNP follows the gradual depreciation path by assumption. With the fiscal contraction alone, real GNP is below the gradual depreciation path from the fourth quarter of 1985 on by an averge of one percent. The bottom panel shows the impacts of the policy actions on the rate of consumer price inflation. With the fiscal contraction, inflation is initially higher than without it, because of the additional depreciation of the dollar. However, the effects of the additional depreciation are transitory, and inflation is eventually lower because of the reduced level of economic activity. With the change in policy mix, the increase in inflation is more pronounced and longer lasting than with

the fiscal contraction because there is even more additional depreciation.

According to the top panel of Chart 22, with the fiscal contraction the Treasury bill rate is lower by an amount that reaches two percentage points. The bill rate is lower because nominal GNP is lower. The change in policy mix generates a much more rapid and larger drop in the path of the bill rate because interest rates must fall by enough to keep the path of GNP unchanged in the face of the fiscal contraction. These decreases in the interest rate explain why both policy actions cause additional dollar depreciation and why the change in mix causes more.

The bottom panel of Chart 22 shows that both policy actions generate significant improvements in the federal budget deficit. With the fiscal contraction the deficit is reduced by an amount that reaches $95 billion by the end of the simulation horizon. The reduction in the actual deficit is less than the reduction in the structural deficit because the decrease in nominal GNP leads to a loss in tax revenues that more than offsets the decline in interest payments. With the change in policy mix, the deficit is reduced by an amount that reaches $140 billion by 1990. The reduction in the actual deficit is greater than the reduction in the structural deficit because the price level and, therefore, nominal income and tax revenues are higher and because interest payments are lower.

Both policy actions have relatively small effects abroad. The U.S. fiscal contraction slightly reduces foreign real GNP and foreign inflation during the last five years of the decade. In the case of the change in the U.S. policy mix -- often suggested by Europeans -- foreign real GNP is roughly unchanged compared to just a gradual depreciation

while foreign inflation is reduced by somewhat less than 1 percent on average over the simulation period.

Let me summarize the presentation we have made this afternoon. The enlargement of the U.S. current account deficit in the 1980's can be directly attributed to the sharp reduction in U.S. price competitiveness and, to a lesser extent, to the relative strength of the U.S. recovery and reduced imports by developing countries. In turn, these developments can be traced in large part to changes in monetary and fiscal policies at home and abroad and, in the case of the reduction in price competitiveness, to a shift in asset preferences in favor of the dollar.

In our view an unchanged dollar exchange rate implies a U.S. external position that is not sustainable in the long run because our net external debt would rise faster than our nominal GNP.

Our scenarios illustrate several ways in which the ratio of our external investment position to GNP could be stablized by 1990. One possibility is an abrupt shift in market sentiment away from the dollar that generates a rapid depreciation of the dollar by 45 percent from its current high level. Another possibility is a more gradual shift in sentiment away from the dollar that takes the dollar down to historical average levels combined with one or another plausible U.S. macroeconomic policy action that takes the dollar somewhat lower for a total depreciation of 35 to 40 percent.

Finally, I would like to emphasize that our scenarios are intended to be illustrative of the general process of correction: a stable ratio of net external debt to GNP could be achieved by other combinations of changes in sentiment about the dollar and policy actions here and abroad. Moreover, a stable ratio need not be achieved by 1990.